a carrier element, the carrier element being an at least one of an elongated carrier element and a cylinder, the optical fiber being wound around the carrier element,

wherein a left-number of the left-hand windings around a first of the carrier elements is equivalent to a right-number of the right -hand windings around a second of the carrier elements.

B4

REMARKS

Claims 15 to 28 are currently pending.

Applicants respectfully request reconsideration of the present application in view of this response.

Regarding paragraph one (1) of the Office Action, the drawings were objected to under 37 C.F.R. 1.84(p)(5) for not including the reference symbol "6" in the description. Applicants respectfully submit that reference no. "6," designating a fiber, is included in the description at page 7, lines 23-26 of the Substitute Specification. Further, for clarification purposes, the Specification has been amended to include the reference no. 6 in the detailed description of Figure 2B. Accordingly, Applicants respectfully submit that reference no. 6 is was and is properly included in the description. Withdrawal of the objection to the drawings under 37 C.F.R. 1.84(p)(5) is respectfully requested.

Regarding paragraph two (2) of the Office Action, the drawings were objected to under 37 C.F.R. 1.83(a) as not showing a "plurality of fiber sections." Applicants respectfully submit that the drawings do show a plurality of fiber sections. See Figures 1-3. For example, Figures 2A and 2B show two embodiments of communications links or of sections thereof. See Substitute Specification, page 11, lines 18-26. In Figure 2A, optical fiber 3 is doubly wound over two cylinders 4, 5. Around cylinder 4, fiber 3 describes a left-hand winding (L), around cylinder 5, a right-hand winding (R). By alternating the two cylinders, a right-hand helical winding and a left-hand helical winding alternates with each other. See Substitute Specification, page 11, lines 1-5, regarding the plurality of line segments, or fiber sections, and Figure 1. See also, Substitute Specification, page 6, lines 8-19, and page 7, lines 4-13. Accordingly, Applicants respectfully submit that the drawings do show a plurality of fiber sections. Withdrawal of the objection to the drawings under 37 C.F.R. 1.83(a) is respectfully requested.

Regarding paragraph three (3) of the Office Action, claim 16 was object to under 37 C.F.R. 1.75(c) as being of improper independent form. Applicants respectfully submit that in

fact claim 16 recites a further limitation of independent claim 15. Independent claim 15 recites that the optical fiber is bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that *an average torsion of the optical fiber* over the optical communications link is about zero. In addition, claim 16 further limits claim 15 by requiring that the optical fiber is bent so that *a torsion of the fiber section* of the plurality of fiber sections averages over a total subsections of the communications link is about zero. See Substitute Specification, page 7, lines 4-13. Accordingly, Applicants respectfully submit that claim 16 appropriately further limits claim 15. Withdrawal of the objection to claim 16 under 37 C.F.R. 1.75(c) is respectfully requested.

Regarding paragraphs four (4) and five (5) of the Office Action, claims 22 and 23 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for reciting "the optical fiber is movable and still stabilized on the carrier element." Applicants respectfully submit that this statement is clear and is not indefinite. An object can be stabilized on another object and still be movable – providing a mechanically flexible connection. See, e.g., Substitute Specification, page 8, lines 4-32. Accordingly, Applicants respectfully submit that the recitation of an optical fiber being movable and still stabilized on a carrier element is clear and definite as in claim 22 (and thus, dependent claim 23). Withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, of claims 22 and 23 is respectfully requested.

Regarding paragraphs six (6) and seven (7) of the Office Action, claims 15 to 17 and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,418,881 to Hart, Jr. et al. (the "Hart, Jr. reference").

The Hart, Jr. reference purportedly concerns an article comprising optical fiber having a low polarization mode dispersion due to permanent spin. Title. The Hart, Jr. reference refers to providing a convention optical preform, heating at least a portion of the preform to a conventional draw temperature, and drawing optical fiber from the heated preform in such a way that a spin is impressed on the fiber. Col. 2, lines 36-41. The Hart, Jr. reference further refers to applying a torque to the fiber such that the fiber is caused to twist around its longitudinal axis with a resulting torsional deformation of the fiber material in the hot zone. Col. 2, lines 41-44. The Hart, Jr. states that a spin is "impressed" on the fiber if the fiber material in the hot zone is caused to be torsionally deformed, with that deformation being frozen into the fiber, such that the fiber exhibits a permanent "spin," i.e., a permanent torsional deformation, whereby the spin impressed on the fiber has a pitch that is not constant over

substantial lengths of the fiber. Col. 2, line 44 to col. 3, line 10. See also col. 4, lines 16-28.

Claim 15 recites:

> An optical communications link comprising:
>
> an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero.

Applicants respectfully submit that the Hart, Jr. reference does not identically describe (as it must to anticipate) or even suggest an optical fiber having a plurality of fiber sections, whose fiber sections are each configured to have at least one of a right-hand curvature and a left-hand curvature; and that the optical fiber is bent repeatedly so that the plurality of fiber sections having right-hand and left-hand curvatures are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero. In contrast, the Hart, Jr. reference is believed to concern an optical communication single mode fiber having a low polarization mode dispersion due to permanent "impressed" spin which is in part alternately clockwise and counter clockwise, with a spin repeat distance of at most 20 meters. The "impressed" spin described in the Hart, Jr. reference as being that spin "impressed" on the fiber if the fiber material in the hot zone is caused to be torsionally deformed, with that deformation being frozen into the fiber, such that the fiber exhibits a permanent "spin," i.e., a permanent torsional deformation.

Accordingly, Applicants respectfully submit that the Hart, Jr. reference does not identically describe the present invention as in claim 15. And, since claims 16, 17 and 20 depend from claim 15, those claims are allowable for at least the same reasons as claim 15. Withdrawal of the rejection under 35 U.S.C. § 102(b) over the Hart, Jr. reference of claims 15 to 17 and 20 is respectfully requested.

Regarding paragraph eight (8) of the Office Action, Applicants thank the Examiner for indicating that claims 18, 19, 21, 24 and 25 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. While Applicants believe that all claims 15 to 28 are allowable, Applicants have amended the claims as suggested by the Examiner.

Regarding paragraph nine (9) of the Office Action, Applicants thank the Examiner for indicating that claim 23 would be allowable if the rejection under 35 U.S.C. § 112, second

paragraph, were overcome, and to include the limitations of the base claim and any intervening claims.

Applicants note that no objections and/or rejections were made with respect to claims 26 to 28. Accordingly, Applicants assume that those claims are allowable; further, Applicants assert that those claims contain features analogous to those discussed above and thus, are allowable for essentially the reasons discussed above.

In summary, it is respectfully submitted that all of claims 15 to 28 of the present application are allowable for the foregoing reasons.

CONCLUSION

In view of all of the above, it is believed that the objections to the drawings and the objection(s) to and rejection(s) of claims 15 to 28 have been obviated and/or overcome. Accordingly, it is respectfully submitted that all claims 15 to 28 are allowable.

It is therefore respectfully requested that the rejections be reconsidered and withdrawn, and that the present application issue as early as possible.

Respectfully submitted,
KENYON & KENYON By: Linda M. Saltiel Reg. No. 47,084

Dated: January 3, 2003

By: Richard L. Mayer
Richard L. Mayer
(Reg. No. 22,490)

One Broadway
New York, New York 10004
(212) 425-7200 (telephone)
(212) 425-5288 (facsimile)

CUSTOMER NO. 26646

VERSION SHOWING CHANGES MADE

IN THE SPECIFICATION:

Please amend without prejudice the second full paragraph on page 12, lines 14-18, of the Substitute Specification as follows:

--In place of two cylinder windings of fiber 3 as shown in Figure 2A, the fiber 6 can also be routed over more cylinders, i.e., four cylinders 7, 8, 9, 10. This is shown in Figure 2B. In the case of Figure 2B, right-hand and left-hand loops alternate, each characterized by R or L.--

IN THE CLAIMS:

Please amend without prejudice claims 18, 19, 21, and 23 to 25 as follows:

18. (Amended) [The] An optical communications link [as recited in claim 17,] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero,

wherein the optical fiber is wound in a helical shape, alternating with a right-hand and left-hand winding helix, wherein the right-hand and left-hand winding helix includes a right-hand helical winding and a left-hand helical winding so that the right-hand helical winding follows and alternates with the left-hand helical winding, a right length of the right-hand helical winding corresponding to a left length of the left-hand helical winding.

19. (Amended) [The] An optical communications link [as recited in claim 15, further] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly

VERSION SHOWING CHANGES MADE

so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero, and

an elastic carrier material, the elastic carrier material being joined to the optical fiber so that a form change of a transmission line is permitted and so that in response to no mechanical load the transmission line retains the optical fiber in its initial curved form, the transmission line configured as a plurality of the optical fibers.

21. (Amended) [The] An optical communications link [as recited in claim 20,] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero, .

a carrier element, the carrier element being an at least one of an elongated carrier element and a cylinder, the optical fiber being wound around the carrier element,

wherein the at least one of the elongated carrier element and the cylinder is flexible.

23. (Amended) [The] An optical communications link [as recited in claim 22, further] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero,

a carrier element, the carrier element being an at least one of an elongated carrier element and a cylinder, the optical fiber being wound around the carrier element, and

a cladding material, the optical fiber being at least one of flush mounted on the carrier element and embedded between the carrier element and the cladding material,

VERSION SHOWING CHANGES MADE

wherein the optical fiber is secured to the carrier element so that the optical fiber is movable and still stabilized on the carrier element.

24. (Amended) [The] An optical communications link [as recited in claim 20,] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero, and

a carrier element, the carrier element being an at least one of an elongated carrier element and a cylinder, the optical fiber being wound around the carrier element,

wherein the optical fiber is coiled with an alternating winding direction around one of two carrier elements disposed side-by-side and an even number of the carrier elements disposed side-by-side.

25. (Amended) [The] An optical communications link [as recited in claim 20,] comprising:

an optical fiber for transmitting information, the optical fiber having a plurality of fiber sections, each fiber section of the plurality of fiber sections being configured to have at least one of a right-hand curvature and a left-hand curvature, the optical fiber being bent repeatedly so that the plurality of fiber sections having a right-hand curvature and a left-hand curvature are distributed over the optical communications link so that an average torsion of the optical fiber over the optical communications link is about zero, and

a carrier element, the carrier element being an at least one of an elongated carrier element and a cylinder, the optical fiber being wound around the carrier element,

wherein a left-number of the left-hand windings around a first of the carrier elements is equivalent to a right-number of the right -hand windings around a second of the carrier elements.